5. Noise

"There was the dry, stimulating dust and spice of heated pines from below… and the infinite mystery of silence. This silence was at times softly broken with the tender inarticulate whisper of falling leaves, broken sighs from the tree-tops, and the languid stretching of wakened and unclasping boughs."

The Bell-Ringer of Angel's, by Bret Harte

Requirements

Government Code Section 65302(f) requires a general plan to include a Noise Element which identifies and appraises noise problems in the community. The noise element must recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and must analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

- Highways and Freeways
- Primary arterials and major local streets
- Passenger and freight on-line railroad operations and group rapid transit systems
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation
- Local industrial plants, including, but not limited to, railroad classification yards.
- Other ground stationary noise sources identified by local agencies as contributing to the community noise environment

Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (L_{dn}). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in the preceding paragraph. Noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

Section 46050.1 of the California Health and Safety Code further requires that revisions to

noise elements in general plans shall be more standardized, comprehensive and utilitarian than had been previously and shall use the guidelines for preparation and content of noise elements as provided by the Office of Planning and Research and summarized in California Government Code Section 65302(f).

Pursuant to the California Department of Health Services, *Guidelines for the Preparation and Content of the Noise Element of the General Plan,* 1998 (as included in the State of California General Plan Guidelines, State Office of Planning and Research), the fundamental goals of the Noise Element are to:

- Provide sufficient information concerning the community noise environment so that noise may be effectively considered in the land use planning process. In so doing, the necessary groundwork will have been developed so that a community noise ordinance may be used to resolve noise complaints
- Develop strategies for abating excessive noise exposure through cost-effective mitigating measures in combination with zoning, as appropriate, to avoid incompatible land uses
- Protect those existing regions of the planning area whose noise environments are deemed acceptable and also those locations throughout the community deemed "noise sensitive"
- Use the definition of community noise environment, in the form of CNEL or L_{dn} noise contours as provided in the Noise Element for local compliance with the State Noise Insulation Standards. These standards require specific levels of outdoor to indoor noise reduction for new multi-family residential construction in areas where the outdoor noise exposure exceeds CNEL (or L_{dn}) 60 dB

Background/Setting

Noise-Generating Sources in/adjacent to Angels Camp

The following noise-generating sources have been identified as being located within or adjacent to the city (See **Appendix 5A** for map):

- Highways and major arterial roadways (traffic)
- Construction activities
- Fixed sirens
- Fire & police sirens
- Athletic fields [Bret Harte High School sports fields on Murphys Grade Rd.; Angels Murphys Arnold Association (AMA) athletic fields off Copello Road]
- Gun club (outside the city limits on Gun Club Road)
- Industrial park (Murphys Grade Road)
- Special Events
- Barking dogs
- Fairgrounds (especially music festivals)
- Free-range shooting

Table 5-1: Noise Levels and Effects of Specific Sounds		
Sound	**Noise Level (dBA)**	**Effect**
Boom Cars	140	
Jet Engines (Near)	140	
Shotgun Firing	130	
Jet Takeoff (100-200 Fl.)	130	
Rock Concerts (Varies)	110-140	Threshold of Pain (125 dB)
Oxygen Torch	121	
Discotheque/Boom Box	120	Threshold of Sensation (120 dB)
Thunderclap (Near)	120	
Stereos (Over 100 Watts)	110-125	
Symphony Orchestra	110	Regular Exposure of more than 1 minute risks permanent hearing loss (over 100 dB)
Power Saw (Chain Saw)	110	
Jackhammer	110	
Snowmobile	105	
Jet Fly-over (1000 Ft.)	103	
Electric Furnace Area	100	No more than 15 minutes of unprotected exposure recommended (90-100 dB)
Garbage Truck / Cement Mixer	100	
Farm Tractor	98	
Newspaper Press	97	
Subway / Motorcycle (25 ft.)	88	Very annoying
Lawn Mower / Food Blender	85-90	Level at which hearing damage (8 hrs.) begins (85 dB)
Recreational Vehicles / TV	70-90	
Diesel Truck (40Mph, 50 Ft.)	84	
Average City Traffic Noise	80	Annoying; interferes with conversation; constant exposure may cause damage
Garbage Disposal	80	
Washing Machine	78	
Dishwasher	75	
Vacuum Cleaner	70	Intrusive; interferes with telephone conversation
Hair Dryer	70	
Normal Conversation	50-65	
Quiet Office	50-60	Comfortable (under 60 dB)
Refrigerator Humming	40	
Whisper	30	Very quiet
Broadcasting Studio	30	
Rustling Leaves	20	Just audible
Normal Breathing	10	
	0	Threshold of normal hearing (1000-4000 Hz)

Preceding decibel table developed by the National Institute on Deafness and Other Communication Disorders, National Institutes of Health, Bethesda, Maryland 20892. January 1990.

Highways and Arterial Roadways

Noise generated by vehicles and trucks along State Route 4 and State Route 49, and noise generated from roadways such as Murphys Grade Road, are the primary contributors to Angels Camp's community noise levels. **Table 5-2** illustrates the distance (in feet) from the centerline of State Routes 4 and 49 and Murphys Grade Road that noise levels of 60 decibels (dB) or greater exist, or are projected to exist, along the city's major transportation routes.

Table 5-2
Distance to 60dB Contours (measured from centerline of roadway)
Angels Camp and Adjacent Areas
Source: Calaveras County General Plan, 1996

State Highway	Distance to 60dB contour in Feet 1990	Distance to 60dB contour in Feet 2010 (projected)
SR – 4 Pool Station Road to Angels Camp	83	102
SR-4 Angels Camp to Vallecito	169	259
SR-49 Fricot City Road to Angels Camp	184	228
SR-49 Angels Camp to South County Line	103	150

In 1982, Caltrans completed a noise report in conjunction with the State Route 4 relocation west of State Route 49. That study measured noise using L10. L10 is the noise level, measured in dBA, which is exceeded for 10% of the time (dBA is noise measured in decibels which deemphasizes the very low and very high frequencies of sound in a manner similar to the human ear). The results of that study are summarized in **Table 5-3** and help to establish the trend of increasing noise within the city limits:

Table 5-3
Distances (in Feet) to Various L-10 Contours
for 1973 and 1995 at Various Locations

Year	1973				1995			
L10 Locations: Contour (db)	**70db**	**65db**	**60db**	**55db**	**70db**	**65db**	**60db**	**55db**
S. City limits to S. Junction SR 4	--	40'	75'	140'	25'	60'	110'	230'
SR 49 at Cherokee Creek	30'	70'	140'	280'	60'	130'	250'	460'

Construction of the State Route 4 North Angels Bypass (slated for completion in approximately 2010) and future construction of the Greenhorn Creek Road Extension South to State Route 49 and the Angel Oaks Drive Extension North around Angels Camp and other roads in the city is expected to redistribute traffic within, through and around the city limits resulting in a redistribution of noise levels within the city limits. This anticipated shift in noise levels is illustrated in **Appendix 5A.**

Construction

Because construction noises are transient, there has not been a concerted effort to reduce the noise levels of the equipment involved. However, as the city expands and as the older areas are renewed and rehabilitated, the noise from construction will become more noticeable. **Table 5-4** lists some of the loudest noise levels anticipated to occur during construction activities.

Table 5-4
Noise Levels Generated at Construction Sites
(Numbers in parentheses are typical dB (A) levels at 50 feet)

Operation	Construction Type		
	Domestic Housing	**Office Buildings**	**Public Works**
Ground-clearing and Excavation	Truck (91)	Truck (91)	Truck (91)
	Scraper (88)	Scraper (88)	Scraper (88)
	Rock Drill (98)	Rock Drill (98)	Rock Drill (98)
Foundations	Truck (91)	Truck (91)	Truck (91)
	Concrete Mixer (85)	Concrete Mixer (85)	Concrete Mixer (85)
	Pneumatic Tool (85)	Pneumatic Tool (85)	Pneumatic Tool (85)
Erection	Concrete Mixer (85)	Derrick Crane (88)	Paver (89)
	Pneumatic Tool (85)	Jack Hammer (88)	Scraper (88)
Finishing	Rock Drill (98)	Rock Drill (98)	Truck (91)
	Truck (91)	Truck (91)	Paver (89)

Source: Environmental Protection Agency, Bolt, Beranek and Newman, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, (1971), pg. 27. Note: While more than 30 years old, the preceding table remains the industry standard used by Caltrans.

***Fixed Sirens**:* Noise sources from fixed sirens used by the Altaville-Melones Fire District are identified in **Appendix 5A**. These sirens are used primarily to bring volunteers to the station during an emergency.

***Fire and Police Stations*:** The locations of fire and police stations within the city limits are shown in **Appendix 5A**. The City maintains a policy of using lights, only unless there is a safety concern that requires the use of sirens in and around residential areas. Because of this policy, sirens are not considered to be noise generators of concern to the City.

Athletic Fields: Another source of noise within or adjacent to the city limits occurs during sporting events at the Bret Harte High School sports fields on Murphys Grade Road and at the Angels Murphys Arnold Association (AMA) athletic fields off Copello Road.

***Gun Club/Free-Range Shooting**:* While located just outside the city limits, the gun club located on Gun Club Road has been identified as a noise source that affects Angels Camp. In particular, noise generation at the club increases during weekly club practices. Noise from free-range shooting also has been identified as a source of noise within the City. State law does not address the discharge of firearms near residences or for similar purposes. Instead, the State delegates this authority to the local jurisdiction. Calaveras County, for instance, prohibits firing a gun within 150 yards of a residence. Therefore, while primarily an issue of health and safety, the Noise Element of the General Plan also includes a program that focuses on regulating the discharge of firearms within and adjacent to the city limits.

Special Events: Parades, gunfight reenactors and similar special events occur from time to time within the city limits. Due to the limited number of these events held in the city, the scheduling of these events almost exclusively during mid-day or early afternoon hours, and the lack of complaints associated with noise generated by these events, special events are not considered noise generators of concern to the City.

Airports & Railroads: There are no airports within the city limits. The nearest airport facilities include the Calaveras County Airport located a few miles south of San Andreas off Carol Kennedy Drive, and Heavy Lift helicopters located on French Gulch Road in Murphys. Angels Camp is not located within major flight paths associated with the airport. The city has no operating railroads within or immediately adjacent to the city limits. Therefore, airports and railroads are not considered noise generators of concern to the City.

Heliports: There are five heliports in and around Angels Camp, located at the Hydrox facility, Angels Murphys Arnold Association (AMA) fields, County Fairgrounds, Bret Harte High School (field) and at the local PG&E facility. Because these facilities are used primarily for medical evacuations and transport, they are not considered noise generators of concern to the City.

Other Noise Generators

As prescribed in the California Department of Health Services, *Guidelines for the Preparation and Content of the Noise Element of the General Plan,* noise complaints received by the Angels Camp Police Department were reviewed to identify other noise-generating sources. The Police Department reports that it receives fewer than one-half dozen noise complaints annually. Complaints of loud music associated with apartment complexes and an occasional loud vehicle have been received. However, given the infrequency of these complaints and that state law already governs the type of vehicle noise complaints received by the police department (see **Table 5-5**), no additional provisions have been proposed to address these isolated incidents.

Table 5-5
Vehicle Noise Limits
Source: California Vehicle Code, 2001

Vehicle Type	Applicable Vehicle Code Section	Special Provisions	Noise Limit (dbA)
Motorcycle	27201	Pre -1970 mfg.	92
Motorcycle	27202	After 1969, and before 1973 mfg.	88
Motorcycle	27202	After 1972 and before 1975 mfg.	86
Motorcycle	27202	After 1974, and before 1986 mfg.	83
Motorcycle	27202	After 1985 mfg.	80
Motorcycle	23130	Other than motor-driven cycle, driven at 45 mph or less	82
Motorcycle	23130	Other than motor-driven cycle, driven at more than 45 mph	86
Motorcycle	23130.5	Driven 35 mph or less in Speed Zone/b/	77
Vehicles Exceeding 5,999 lbs	27204	Varies per date of manufacture	80-88
Vehicles Exceeding 6,000 lbs or more	23130.5	Driven 35 mph or less in Speed Zone/b/	82
Vehicles Exceeding 10,000 lbs or any combination of vehicles towed by such a vehicle	23130(a)	Driven 35 mph or less	86/a/
Vehicles Exceeding 10,000 lbs or any combination of vehicles towed by such a vehicle	23130(a)	Driven more than 35 mph	90/a/
All Other Vehicles	27206	After 1967, before 1973 mfg.	86
All Other Vehicles	27206	After 1972, before 1975 mfg.	84
All Other Vehicles	27206	After 1974 mfg.	80
All Other Vehicles	23130(a)	Driven 45 mph or less	76/a/
All Other Vehicles	23130(a)	Driven more than 45 mph	82/a/
All Other Vehicles	23130.5	Driven 35 mph or less in Speed Zone/b/	74

/a/ Measured at 50 feet from center of the lane of travel.
/b/ Notwithstanding the provisions of Section 23130(a), these noise limits apply in a speed zone of 35 mph or less on level streets or streets with a grade not exceeding 1%+. Measurements of noise are 50 feet from center of the lane of travel.

Community Noise Exposure Inventory

A final requirement of the Noise Element is to analyze the current and future impacts on community residents of noise emanating from identified noise-generating sources. **Table 5-6** provides estimates of the number of community residents subject to noise levels of 60 dB in 1990 and projected for the year 2010. Projected 2010 noise exposure assumes construction of the State Route 4 North Angels Bypass, the Greenhorn Creek Road Extension South to State Route 49 and the Angel Oaks Drive Extension North.

Table 5-6:
Community Noise Exposure Inventory
Angels Camp City Limits

Year Decibels	Estimated # Households Exposed to Noise Level	# of persons (@ 2.34/household)/a/
Year 1990-1995/b/		
60 dB	282	659
65 dB	252	589
Year 2010/c/		
60 dB	652-765	1,525-1,790
65 dB	Study Pending - to be available in Draft EIR/d/ Totals will be less than those for 60dB	

/a/ Census 2000, City of Angels
/b/ Based on data provided in **Table 5-2** and **Table 5-3**
/c/ Based on data provided in **Table 5-2** (existing roads) and **Appendix 5A~~B~~** (proposed new roads).
/d/ Effective May, 2005, the Department of Transportation, Federal Highway Administration adopted a new Traffic Noise Model (FHWA TNM) replacing the FHWA Highway Traffic Noise Prediction Model (Report No. FHWA-RD-77-108, December, 1978). The new FHWA TNM is available on-line. Due to the technical requirements necessary to accurately use this model; results will be provided in conjunction with the draft EIR.

The numbers in the preceding table are important for future planning efforts to protect city residents from excessive noise levels due to vehicular traffic and stationary noise-generators.

GOALS, POLICIES AND IMPLEMENTATION PROGRAMS

Goal 5.A Maintain or reduce noise levels throughout the city as necessary to achieve compatibility between differing land uses and to maintain the city's peaceful, rural community atmosphere.

Policies

5.A.1 Develop uniform, cost-effective and feasible standards for consistently and fairly mitigating temporary and permanent noise impacts associated with new development**.**

5.A.2 Continue to identify and implement solutions for resolving noise complaints received within Angels Camp.

5.A.3 Separate noise-generating and noise-sensitive land uses to the maximum extent feasible.

5.A.4 Support alternative transportation routes, alternative transportation methods and other special programs aimed at reducing excessive noise levels.

Implementation Programs

5.A.a **Adopt Exterior Ambient Community Noise Exposure Levels (CNEL) for New, Non-Residential Development**

Adopt the following exterior ambient community noise exposure levels (CNELs) for application to new, non-residential development in Angels Camp. New, non-residential development shall not exceed "normally acceptable" noise levels as defined in the following table, **Figure 5-1:**

Note to Figure 5-1: Where the location of an outdoor activity area is unknown, the exterior noise level standard shall be applied to the property line of the receiving land uses. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of the noise barriers or other property line noise mitigation measures.

Figure 5-1 : Exterior Community Noise Exposure Levels- L_{dn} or CNEL, (in Decibels, dB)

Decibels	55	60	65	70	75	80
Land Use Category						
Residential low-density, single-family, duplex, mobile homes	Normally Acceptable	Conditionally Acceptable		Normally Unacceptable		Clearly Unacceptable
Residential multi-family	Normally Acceptable	Conditionally Acceptable		Normally Unacceptable		Clearly Unacceptable
Transient lodging, motels, hotels	Normally Acceptable	Conditionally Acceptable		Normally Unacceptable		Clearly Unacceptable
Schools, libraries, churches, hospitals, nursing homes	Normally Acceptable	Conditionally Acceptable		Normally Unacceptable		Clearly Unacceptable
Auditoriums, concert halls, amphitheaters (during use)	Conditionally Acceptable			Clearly Unacceptable		
Sports arena, outdoor spectator sports (during use)	Conditionally Acceptable			Clearly Unacceptable		
Playgrounds, neighborhood parks	Normally Acceptable			Normally Unacceptable		Clearly Unacceptable
Golf courses, riding stables, water recreation, cemeteries	Normally Acceptable			Normally Unacceptable		Clearly Unacceptable
Office buildings, business, commercial and professional	Normally Acceptable			Conditionally Acceptable		Normally Unacceptable
Industrial, manufacturing, utilities, agriculture	Normally Acceptable			Conditionally Acceptable		Normally Unacceptable

Figure 5-1 Key:

Normally Acceptable:
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional Construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development should generally not be undertaken.

5.A.b **Continue to Enforce State Noise Insulation Standards and Uniform Building Code Standards for Interior Noise Levels**

Continue to enforce the State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the Uniform Building Code (UBC) establishing interior noise exposure for multi-family housing, hotels and motels.

Related Programs: 5Ac (Noise), 5Ah (Noise)

5.A.c **Continue to Require Noise-Insulating Construction in the 60 CNEL Contour**

Continue to require noise-insulating construction for single-family and multi-family dwellings, hotels and motels located within the 60 CNEL contours (as indicated in **Appendix 5A**, as may be updated), in order to reduce interior noise levels to 45 CNEL

Related Programs: 5Ab (Noise)

5.A.d **Adopt Construction/Maintenance Activity Noise Management Standards**

Adopt construction/maintenance activity noise management standards for activities undertaken in conjunction with issuance of discretionary permits. Work with the development community to establish operating hours or a time span of operation for those activities that may adversely affect neighboring land uses during construction. Additional noise management standards may include, but are not limited to: acoustic muffling of construction equipment per Caltrans standards; and maximum noise standards for small engines (e.g. two-cycle engines, leaf-blowers, chainsaws).

Related Programs: 5Ae (Noise)

5.A.e **Provide Noise-Reduction Guidelines for New Construction/Remodeling**

Make noise-reduction guidelines for new construction/remodeling available on the Angels Camp city government website and/or at the public counter of the Community Development Department. These guidelines may include, but are not limited to:

> *Caltrans Noise Manual*, *Fundamentals and Abatement of Highway Traffic Noise (*U.S. DOT, Federal Highway Administration, National Highway Institute Report No. FHWA-HHI-HEV-73-7976-2*).*

Related Programs: 5Ad (Noise)

5.A.f **Establish Standards for Noise Studies for New Development Near Noise-Sensitive Land Uses**

Establish standards for when and how to conduct a noise study in conjunction with discretionary entitlements for new development proposing to locate near existing residential areas, schools, hospitals, nursing homes, churches, libraries or similar *noise-sensitive receptors* when the environmental review process indicates that the proposed land use has the potential to generate excessive noise. Required noise studies shall be undertaken by qualified consultants approved by the city and shall be undertaken at the applicant's expense.

5.A.g **Consider Noise Impacts of New Transportation Facilities**

Continue to consider noise impacts when evaluating proposals for new transportation facilities such as streets, highways, bus stops and similar facilities. Continue to encourage transportation agencies and road construction companies to limit adverse noise impacts.

Related Programs: 5Ac (Noise)

5.A.h **Maintain Compatible Land Uses**

Continue to avoid locating noise-sensitive land uses near major noise sources when updating the general plan, evaluating general plan land use amendments, adopting implementing ordinances and when updating the goals, policies and implementation programs of the Angels Camp General Plan's **Noise (Chapter 5)**, **Circulation (Chapter 3)**, **Housing (Chapter 2)** and **Conservation and Open Space (Chapter 4**) Elements.

Equivalent Program: 1Ba (Land Use)

5.A.i **Prepare a Master Noise-Contour Map**

Create a master noise-contour map to be used in the review and approval process for development proposals, as well as for evaluating and updating Circulation, Land Use, and Open Space elements to minimize noise impacts on noise-sensitive areas. This map should recognize the role of topography in making noise-related siting considerations.

Related Programs: 5Ac (Noise)

5.A.j **Investigate Standards and Remedies for Governing Excessive Dog Barking**

Coordinate with the local Humane Society/Animal Control, veterinary practices or similar organizations to provide enforcement agencies and public counters with information on available dog training courses and methods for controlling dog barking (e.g., maintaining a list of local animal trainers and a schedule of dog-training classes). Continue to use the City's existing nuisance ordinance, when necessary, to resolve noise disputes related to barking dogs. Consider amending this ordinance to require mandatory training, medication or other appropriate response for chronic offenders. Consider amending the city's municipal code to make it an infraction for any person to allow a pet to disturb other persons by noise. Consider using the City Police Department's Community Service Officers to assist in resolving noise disputes, including those resulting from barking dogs.

Related Programs: 1Ia (Land Use), 2Aa (Housing), 2Dg (Housing), 3Bk (Circulation), 6Bh (Public Safety), 7Ck (Public Facilities & Services), 7Hc (Public Facilities & Services), 7Hd (Public Facilities & Services), 7Ig (Public Facilities & Services), 10Ab (Economic Development), 12Am (Parks & Recreation)

5.A.k **Coordinate with the 39th District Agricultural Association and/or State to Manage Fairground Noise**

Contact the 39th District Agricultural Association and/or the California Department of Agriculture regarding around-the-clock and late-night performances at the fairgrounds during special events. Urge the Board to eliminate performances after midnight, to require such performances to be held in-doors, or implement other methods to reduce adverse noise impacts on the residents of Angels Camp.

Related Programs: 7Ig (Public Facilities & Services), 12Am (Parks & Recreation)

5.A.l **Recognize Noise Associated with Agricultural Activities**

Please refer to **Program 4.E.b** of the Angels Camp General Plan Conservation & Open Space Element (Chapter 4) addressing Right-to-Farm provisions for Angels Camp.

Related Programs: 4Eb (Conservation & Open Space), 4Ec (Conservation & Open Space), 11Ac (Community Identity), 11Ae (Community Identity), 12Am (Parks & Recreation)

5.A.m **Investigate Adoption of an Ordinance Addressing Discharge of Firearms within the City**

Consider adopting an ordinance with regulations governing the discharge of firearms within Angels Camp**.** The ordinance should, at a minimum, address shooting within 150 yards of a residence and exceptions for law enforcement and as already granted by state law.